

Spring Newsletter

North West Three Maths Hub



National Centre
for Excellence in the
Teaching of Mathematics

‘Teaching for Mastery’ – NW Maths Hub 3 supporting schools to develop an understanding of Mastery and working towards achieving this for all!

The overall aim:

All Maths Hubs working together to support primary practitioners through to post 16 to have a chance to change/influence maths education across the country.

About our work:

As a Lead Maths Hub we provide support to all schools in the area and the NW, across all areas of maths education, including:

- Recruitment of maths specialists into teaching.
- Initial training of maths teachers and converting existing teachers into maths.
- Co-ordinating and delivering a wide range of maths continuing professional development (CPD) and school-to-school support.
- Ensuring maths leadership is developed, e.g. running a programme for aspiring heads of maths departments.
- Helping maths enrichment programmes to reach a large number of pupils from primary school onwards.

For further information in relation to National and Local work streams that Maths Hub NW3 is involved in please visit:

<http://www.nwmathshub3.co.uk/index.html>

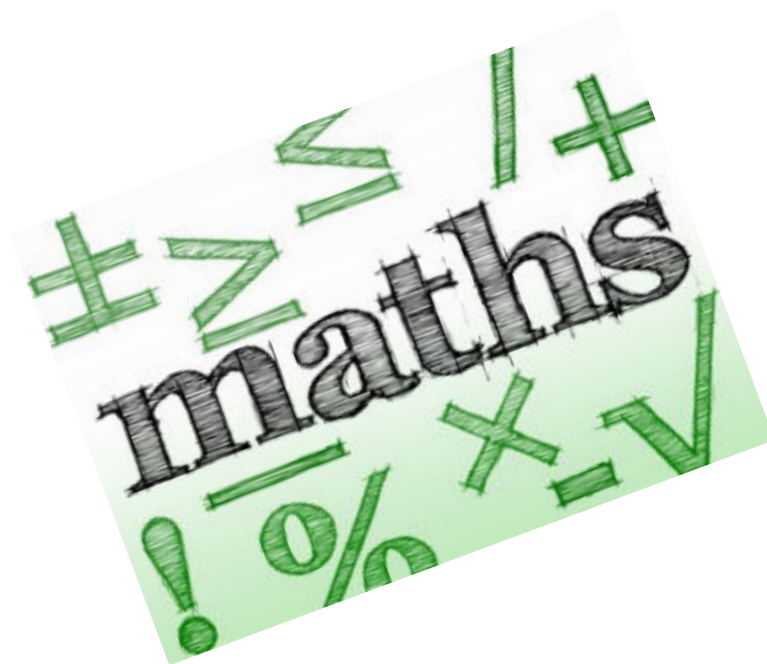
or follow us on twitter: @NWmathshub3.

Alternatively please don't hesitate in contacting:

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National projects and priorities to date– Sept 2015-2016

NCP 1a Implementation of learning from England-China exchange

St Mary and St Thomas' CE Primary school, St Helens (Lead school) have had School leaders, Maths Subject Leads and Teachers from across the NW visit the school to observe the 5 Part Maths lesson (based on learning from Shanghai). Over 150+ practitioners have seen how teachers 'Teach for Mastery'. The lesson is based on the Core Principles of Mastery teaching and include: Coherence, Representation and Structure, Mathematical Thinking, Fluency and Variation.

Key findings so far...Children who have always struggled to problem solve as it seemed such an abstract concept, have had huge success using Shanghai maths. Using the hook at the beginning of the

lesson has ensured that problem solving is used to set the context and with the help of Master Teachers, learning is scaffolded by the class teacher, other adults and other pupils in the classroom. This has been very successful as before any input is given by the class teacher, the pupil has had the opportunity to immerse themselves in the concept supported by others. This has had an impact upon the pupil's starting points, use of mathematical language and overall confidence. The hook has also ensured that the teacher has a better understanding of pupil's misconceptions before their targeted input and support. The teacher is able to use AFL more effectively now to

address the pupil's knowledge and understanding. Immediacy of feedback is applied to target all children to 'close the gaps' so all children can access all content at the same time.

We are now working with the 'Knowsley Strategy' and supporting schools in this initiative.

The lead schools within Warrington and Knowsley are also finding that children are excited to find out what the new problem is and 'have a go'. Children are more confident attempting a problem and enjoy talking about how they solved it. They are becoming 'experts' and are becoming more confident finding a 'way in' to problems. Those children who find it

more difficult benefit from sharing examples with those on the right path. Other benefits include: Maths is now set in a purposeful context, it has highlighted parts of the curriculum that children struggle with, lessons are well paced yet ensure deeper understanding of concepts, staff and children are making relationships between concepts through problem solving and the 'Hooks' allow children to discuss with partners and give the higher attaining children an opportunity to teach their peers.

Overall, trial schools feel the children are more advanced at this point of the year compared to last year's cohort.

NCP 1b Secondary China- England Exchange

Holmes Chapel Comprehensive School (Cheshire) are leading the work on behalf of NW Maths Hub 3. Craig Jeaves (HOD) and Matt Fox (Y7 Maths teacher) visited Shanghai in September with the Chinese teachers returning to England in November. Whilst in China teachers were exposed to, observation of and immersion in Shanghai-style upper

primary and lower secondary mathematics teaching for mastery. They had ample opportunity to secure an accurate understanding of Shanghai-style teaching for mastery principles and practice and develop their understanding of the effectiveness, and also the organisational requirements of, Teacher Research Group-style CPD.

When the Chinese teachers visited the Maths departments at Holmes Chapel this involved: trialling the principles and practice of Shanghai-style teaching for mastery in Y7/8 classes, core structures such as same-day intervention, regular homework and use of textbooks; supporting the preparation of lessons more

carefully and thoroughly. During this time road shows and observational visits took place at Holmes Chapel with Primary, Secondary and Post 16 practitioners from across the NW and representatives from NCETM visiting the school. The two leads are now planning the Wave 1 roll out to begin next term.

Useful links include:

[NCETM](https://www.ncetm.org.uk/): <https://www.ncetm.org.uk/>

[Maths Hub website](http://www.nwmathshub3.co.uk/): <http://www.nwmathshub3.co.uk/>

[Nrich](http://nrich.maths.org): <http://nrich.maths.org>

[Maths No Problem](http://www.mathsnoproblem.co.uk/): <http://www.mathsnoproblem.co.uk/>

[Inspire \(OUP\)](https://global.oup.com/education/content/primary/series/inspire-maths/?region=uk): <https://global.oup.com/education/content/primary/series/inspire-maths/?region=uk>

[Maths Associations](http://www.nwmathshub3.co.uk/associations.html): <http://www.nwmathshub3.co.uk/associations.html>

[Learn and Lead – Maths Strategy group info](http://learnandlead.co.uk/): <http://learnandlead.co.uk/>



NCP 2a- Singapore 'Text Book' Trial (Maths No Problem)

The Deep Learning maths team (Wirral) are leading this work on behalf of NW Maths Hub 3, they have trained a total of 45 schools in Warrington, St Helens, Widnes, Ellesmere Port and on the Wirral. This work is built around the expert progression provided by Dr Yeap Ban Har's Singaporean text book and develops sound pedagogy through the Singaporean five part lesson and delivery of the five core maths competencies.

Year 1, Year 2, and Year 3 teachers have received three full days of training and are now deepening their learning through morning sessions of team teaching in their classrooms and afternoon sessions where year group teachers gather for high impact, intensive lesson exploration. Year 4, 5 and 6 training is underway and the programme is now extending into Key Stage 3.

Feedback has been overwhelmingly positive. The first roll out of the full days of training was rated as excellent by 91% of staff attending. 9% rated it as good and these staff are now finding such benefit from the follow-up sessions that their headteachers are now collaborating with the others to pay for further follow up sessions.

Delegates from schools trained by Deep Learning (DL), at a DL hosted conference with world leading trainer, Dr Yeap Ban Har, and showed an impressive depth of understanding, noted by Ban Har who is holding conversations with Deep Learning directors, regarding future work together.

Informal evidence of impact is gathering: 90% of top group Year 2 children, having used the Singapore approach for two terms, achieved level 3 on the first, un-prepped SAT test they tried - in March! Teachers are astounded by the level of understanding being revealed through the power of journalling and the ease of Assessment for Learning resulting from the lesson design.

Ofsted have noted, in a school which is successfully adopting the Singapore approach throughout the primary range to bring a school out of Special Measures: "This approach to teaching – encouraging deeper thinking and mastery of new ideas – is paying dividends."

NCP 2b- Inspire 'Text book' trial

Newfold CPS (Wigan) is leading a group of 6 Wigan Schools to develop maths practice in Y1 (initially) exploring Investigation, use, practice and immersion in teaching approach of models and representations with a strong focus on Number, Calculation and Assessment. Developing a specific focus, principles and practice model linked to number/calculation and the use of manipulatives to ensure an earlier concrete/deeper understanding on which to build upon. Trialling the immediacy of feedback and quality mathematical marking is also being explored. Resources used to support this project has been the 'Inspire Maths' text books. Inspire Maths is a transformational whole-school primary maths programme built on the Singapore Maths approach (Oxford University Press).

NCP 3- Post 16 Widening Participation

The Post 16 work group led by Carmel College, St Helens has grown in strength. This group now includes representatives from: St John Bosco, Liverpool Hope and Edge Hill University, CMSP (Steven Nixon), FMSP (Martin Bamber), Priestley College, The City of Liverpool College, Formby High School, Wirral Met and Holmes Chapel Comprehensive School.

The group has begun to create a resource bank/ drop box for KS4 reasoning/problem solving and materials to support teachers deliver Core Maths.

A Post 16 conference has been planned for Wednesday 23rd March 2016. This will be aimed at teachers, promoting ideas to assist with new GCSE specification and to make Maths more enjoyable and relevant. Rob Eastway has been booked as the Key Note for this conference. Further details to follow...

Free CPD:

A general approach to using a Casio graphics calculator at A level Maths and Further Maths.

Tuesday 1st March, 3.00-5.00pm at St John Bosco High School, Liverpool.

As there is likely to be an increased focus on the use of technology in the new specifications it is therefore probable that the use of graphics calculators will be widespread if not obligatory, so this is an ideal opportunity to prepare for the new specifications as well as a chance to learn how a graphics calculator can be used to support teaching and learning at A-Level.

This course is free and will assume no prior knowledge of the graphics calculator.

There will also be the opportunity to book a loan set of calculators after the training so that you can try out some of the ideas and activities with your own students as well as gain information on supported pricing offers. Calculators will be provided for the training session.

Places will be allocated on a first come, first serve basis. If you would like to reserve a place on this training please contact Lisa Bradshaw (Maths Hub Lead)- lisa.bradshaw@three-saints.org.uk | 01744 678010/01744 678190

NCP 4- KS3 Reasoning Project

Lindsay Porter, Secondary Maths Hub Lead in partnership with Liverpool Hope University will support the successful schools in developing reasoning as this is one of the three core aims of the new National Curriculum. It is an opportunity for teachers to participate in a high-quality professional development programme jointly led by the NCETM and the Maths Hubs network.

Two teachers from the selected Maths departments will participate in four professional development workshops (one in each half term from January to July) concentrating on reasoning in KS3, and in between each PD workshop, these teachers will lead a lesson study gap task (which will include peer observation and reflection) in which all the department will take part. As a result of which all involved will each individually improve your knowledge and confidence to develop your pupils' reasoning, and will collectively experience rich and sustained professional development that will ensure that how your departmental practice and culture develops this year is embedded and deepened next year, and thereafter.

Due to the very high interest in this project, we will be working with 10 schools in total, 2 practitioners from each school: All Saints Catholic High School (Rawtenstall), Byrchall High School (Wigan), Cowley International College (St Helens), Rowan Park High School (Liverpool), St Christophers CE High School (Accrington), Christ the King Catholic High School (Southport), Haydock High School (St Helens), Hawkley Hall High School (Wigan), St Edmund Arrowsmith Catholic High School (Wigan) and St Marys Catholic Academy (Blackpool).

NCP 5- Maths Masters Programme

The programme is designed to develop the following knowledge and skills in participant teachers: Understanding of the principles of mastery within the context of teaching mathematics, deep subject knowledge of primary mathematics to support teaching for mastery, the development of effective teaching techniques to support pupils in developing mastery of mathematics, the ability to assess pupils for mastery and the ability to support other teachers, and lead teacher research groups (*)

(*) A teacher research group (TRG) is a professional development activity attended by a group of teachers, with a specific focus on the design, delivery and learning within a jointly evaluated mathematics lesson. Once fully trained, each one of these new specialist teachers will lead the professional development of further groups of teachers in schools within their hub area.

The 4 NW Maths Masters will each run a network involving 5 schools across targeted areas within the NW, 20 schools in total have recently been selected via an application process to be involved in this initial roll out. The first TRGs will take place during the next ½ term.

NW Maths Hub 3 local projects include:

Excellent Maths Teacher Programme- Primary

NW Maths Hub 3 invited 30 'Excellent Maths Teachers' from several LAs, to widen collaborative networks, to participate in the 'Excellent Maths Teacher' programme, this is a pilot programme for 12 months (October 2015-July 2016). Participants were selected based on an application process.

The programme will cover 7 face-to face sessions plus 'gap' tasks. Sessions will include: Developing subject knowledge in terms of Problem Solving, reasoning and fluency, developing progressional understanding and subject knowledge linked to place value, and all areas of calculation. Links will also be made on making connections and systematic variation, SKE and building teacher confidence in algebra and fractions, effective monitoring to determine impact including book scrutiny, QA/moderation and standardisation, tracking of progression of skills and action planning and providing effective marking and mathematical feedback.

All sessions will be delivered/facilitated by Tara Loughran. Tara has provided high quality training for the St Helens TSA since becoming at teaching school in 2013; she has inspired lots of teachers and support staff to take her ideas back to the classroom with significant impact. Tara now represents NW Maths Hub 3 across the North West and sits on the Executive board.

Maths Mastery- in association with the 'Ark Academy' project...

Primary- 9 schools (St Helens and Knowsley) have been involved in the programme since September 2015; this includes: Y1 teachers and Maths SLs from across the schools are being highly trained in the 'Teaching for Mastery' core principles. Materials are being trailed and networks have been created to collaborate to share findings.

Secondary- Rainford High Technology College has joined The Mathematics Mastery (MM) partnership which aims for exceptional achievement in Mathematics for all students through exemplary teaching. MM strongly believe in an entitlement to a great mathematics education for all students, whatever their background or prior attainment. Central to this is the belief that everyone can improve and effort is more important than "ability", the lessons focus is on problem solving and depth of understanding. The philosophy is centred on wanting all children to think like mathematicians not just DO maths.

MM believe that pupils should:

- explore, wonder and question
- compare, classify and sort
- experiment, play with possibilities, modify things and see what would happen
- make theories, predictions and draw conclusions

Mathematics Mastery is a long-term programme based on evidence and research. Although it's in its early days of implementation, research by the University of Central London and the University of Cambridge has shown impact even after only one year of use. Teachers at Rainford are really enjoying the challenge of teaching Mastery lessons and can see the benefit for all students. The scheme develops student's core skills whilst also allowing them to explore and reason mathematically.

Student's resilience is building and feedback has been positive. Some of the quotes from our year 7 students are: "I enjoy the parts when the maths teacher asks us to come up and tell us our strategy" "Doing problem solving by using the equipment helps because it makes working things out easy."

"I enjoy looking at different ways of working questions out."

Teaching for Conceptual understanding research project

Two primary teachers working in university partnership schools undertook short classroom based research projects around themes of teaching for conceptual understanding, and use of concrete apparatus. The teachers were supported by two university ITE tutors with interests in teaching for mastery and in teachers' professional development. There were interesting outcomes to this study beyond the impact on children's learning - developments in teachers' thinking and practice, and enrichment of the mathematics partnership group. The team presented their findings at a conference of BSRLM (British Society for Research in Learning Mathematics), at Reading University on 7th November 2015. They are currently writing this up as a short paper which will be published online in the BSRLM conference proceedings (public domain, accessible to all) Participants: Lynn Duckworth, Childwall CE Primary School, Liverpool, Steve Lawley, St Silas CE Primary School, Liverpool, Mahnaz Siddiqui, Liverpool Hope University and Dr Mary Stevenson, Liverpool Hope University.



TSST (SKE)- Secondary Subject Knowledge enhancement programme

An exciting offer for serving and returning secondary teachers who are moving into teaching mathematics, but do not have a previous mathematical qualification. It will enable staff to develop a deeper knowledge and understanding of all aspects of mathematics.

St Helens TSA successfully ran this project in 2014-15 with 10 delegates completing the training programme. In 2015-16, we have recruited 12 candidate, this innovative **Subject Knowledge Enhancement (SKE/TSST) course** is delivered in partnership with experienced staff from **Rainford High School** working to support the maths hub alongside extremely experienced staff from **Liverpool Hope University**.

Please see [this flyer](http://bit.ly/1KR0BMG) (http://bit.ly/1KR0BMG) for more details, including a proposed schedule for the training. All school based sessions will be delivered at Rainford High School.

Expressions of interest are now being taken to start training in Sept 2016-17 programme. Please contact: Lisa Bradshaw for further details.

Primary Maths Subject Leaders Network

Tara Loughran will continue to deliver this network. We have 40+ subject leads that attend from St Helens, Knowsley, Wigan, Warrington, Sefton, Liverpool, Bolton and Halton.

In 2015-16 these sessions will run on:

Friday 11th March 2016- 9-3.30pm at St Helens Chamber

Friday 1st July 2016- 9-3.30pm at St Helens Chamber

Themes to include: Maths Hub NW3 updates, Assessment of Mastery, Learning from Shanghai and Singapore, Reasoning, fluency and Problem Solving in the National Curriculum, Teaching for mastery- What does depth look like? Effective monitoring and meeting the needs of the new testing and reporting framework.

Secondary/Post 16 Maths Subject Leader Network

Lindsay Porter (AQA associate and Secondary Maths lead) will continue to deliver this network in St Helens and Wigan.. We now have 23 HOD regularly attending, this has grown from 5 (aut term), 15 (spring term) and it continues to grow!

In 2015-16 these sessions will run on:

Wigan group- 1.30-3.30pm at Birchall CPD Centre.

Wednesday 10th February 2016 and Wednesday 15th June 2016.

St Helens group- 1.30-3.30pm at Rainford High School.

Tuesday 23rd February 2016 and Monday 20th June 2016.

Themes to include: Reasoning at KS3, Learning from Shanghai and Singapore, Effective Maths transitions- KS2-3, KS3-4 and KS4-5, New GCSE support, Mastery (teaching for depth), Assessment without levels, CMSP/FMSP, subject knowledge and progressional understanding CPD sessions and resources.

Secondary Maths NQT programme

This year we have 14 Secondary NQT Maths teachers from across Wigan, St Helens, Halton, Knowsley and Southport completing the programme as outlined below:

Autumn Term 1: This session will focus on preparing NQT's for a very busy year with lots of practical tips for planning, organising and managing a smoothly run maths classroom.

Wed 7th October, 2pm – 5:30pm at Byrchall CPD Centre.

Autumn Term 2: Teaching and Learning session looking at progression, mastery and quality resources for teaching fractions.

Mon 16th November, 2pm – 5:30pm at Rainford High School.

Spring Term 1: This session will focus on behaviour management in the maths classroom. Keeping students engaged and motivated with effective use of brain gym and re-focussing activities.

Tues 19th January, 2pm – 5:30pm at Byrchall CPD Centre.

Spring Term 2: Teaching and Learning session looking at progression, mastery and quality resources for teaching algebra.

Wed 2nd March, 2pm – 5:30pm at Rainford High School.

Summer Term 1: This session will focus on reflecting on the year and top tips for a high impact fresh start for September.

Tues 3rd May, 2pm – 5:30pm at Byrchall CPD Centre.

Summer Term 2: Teaching and Learning session looking at embedding problem solving and ways to develop reasoning skills into every lesson.

Tues 21st June, 2pm – 5:30pm at Rainford High School.

The programme is delivered by Lindsay Porter. Lindsay is a former Head of Maths, current GCSE and A Level examiner. She now works as a regional maths advocate for AQA facilitating collaboration between maths teachers and subject leaders across the North West. She believes in a practical approach and is passionate about teaching and learning! Lindsay has recently delivered the Secondary Maths Subject Leader network meetings to colleagues across Wigan and St Helens on behalf of NW Maths Hub3 and will continue to deliver these sessions on a termly basis.

For further details please contact: lisa.bradshaw@three-saints.org.uk

NW Maths hubs working together annual conference is BACK!!

After an incredibly successful conference held at Chorley Woodland in July 2015 the three NW Maths Hubs have begun to plan this year's conference. It will take place on: Tuesday 5th July 2016 at Manchester Metropolitan University. Key notes to include: Robert Wilne (NCETM Associate), EMS Lloyd (Director of Nrich) and Andrew Jeffery (Mathmagian). Workshops will be available for Maths Leaders and Practitioners across all phases. Further details to follow..

Teaching for Mastery—Leadership Update

Mathematics Teaching for Mastery Head Teacher briefing took place on: Thursday 21st January at The World of Glass, 30 senior leaders attended the event. At the session we explored- What is Mastery? And how do you achieve it?- Ensuring consistency and a common approach across all schools.

The New Curriculum states: The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. (National Curriculum for Mathematics page 3).

OFSTED- Sept 2015 guidance states: In the mathematics lessons observed, through discussions with pupils and scrutiny of their work and by reviewing curriculum plans, how well teaching: develops depth of understanding and readiness for the next stage – the national curriculum for mathematics at Key Stages 1 and 2 specifies the aims and then states, 'The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace'. At all key stages, the national curriculum states, 'Decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on'

With this in mind it is essential that school leaders have a clear picture of 'Teaching for Mastery' and 'Assessing of Mastery'.

NWMathsHub3 Primary CPD Opportunities for Spring and Summer

Challenge for higher attaining pupils in Upper Key Stage 2: Friday 26th February 2016

Effective Transition from EYFS to Year 1: Thursday 16th June 2016

Effective Transition from Year 2 to Year 3: Thursday 23rd June 2016

Mathematical Moderation in Year 1: Friday 22nd April 2016

Mathematical Moderation in Year 2: Tuesday 19th April 2016

Mathematical Moderation in Year 3: Wednesday 20th April 2016

Mathematical Moderation in Year 4: Wednesday 27th April 2016

Mathematical Moderation in Year 5: Thursday 28th April 2016

Further details are available on the [St Helens TSA website](http://www.sthelensteachingschools.co.uk/CPD_calendar_math.html)

http://www.sthelensteachingschools.co.uk/CPD_calendar_math.html

